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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,450	08/26/2003	Michael Doogue	ALLEG-039PUS	5775
22494	7590	11/18/2004	EXAMINER	
DALY, CROWLEY & MOFFORD, LLP			OLIVA, CARMELO B	
SUITE 101			ART UNIT	
275 TURNPIKE STREET			PAPER NUMBER	
CANTON, MA 02021-2310			2831	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/649,450

Applicant(s)

DOOGUE ET AL.

Examiner

Carmelo Oliva

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-19, 21, 22 and 24 is/are rejected.
- 7) ☒ Claim(s) 12, 20 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/7/04 & 11/8/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 19-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 19, "selected to provide an increased flux density" it is unclear what the flux density will be increased from.

The claims have been examined as best understood.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3,8-11,13,17-19,21,22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Steiner et al. (US 6,356,068).

Regarding claim 1, Steiner et al. discloses an integrated circuit in Fig. 5, comprising:

a lead frame having a plurality of leads 4;

a current conductor portion 5 comprising a coupling of at least two of the plurality of leads;

a substrate 1 having a first surface proximate to said current conductor portion and a second surface distal from said current conductor portion; and

one or more magnetic field transducers 2 disposed on the first surface of said substrate.

Regarding claim 2, said substrate is disposed having the first surface of said substrate above said current conductor portion and the second surface above the first surface (Fig. 4).

Regarding claim 3, said substrate is disposed having the first of said substrate below said current conductor portion and the second surface below the first surface (Fig. 5).

Regarding claim 8, said substrate has at least one bonding pad 9 coupled to a corresponding one of the plurality of leads with a bond wire 10.

Regarding claim 9, said substrate is associated with a selected one of a solder ball, a gold bump, a eutectic and high lead solder bump, a no-lead solder bump, a gold

stud bump, a polymeric conductive bump, an anisotropic conductive paste, and a conductive film coupled to a corresponding one of the plurality of leads.

Regarding claim 10, the transducers 2 are on opposite sides of a current conductor portion axis.

Regarding claim 11, predetermined voltage polarities could be found via rotating the transducers.

Regarding claim 13, at least a portion of said current conductor portion has a rectangular cross section having a minimum dimension less than a thickness of said lead frame.

Regarding claim 17, a flux concentrator disposed proximate said one or more magnetic field transducers 21 as shown in Fig. 9.

Regarding claim 18, a flux concentrating layer 22 disposed proximate the second surface of said substrate (col. 7, lines 44-47).

Regarding claim 19, Steiner et al. discloses a method of manufacturing an integrated circuit, comprising:

providing a lead frame having a plurality of leads 4 of which at least two are coupled together to form a current conductor portion 5; and

etching the current conductor portion to provide the current conductor portion with a cross section having a predetermined shape to provide an increased flux density.

Regarding claim 21, the predetermined shape comprises a rectangular shape having a minimum dimension less than a thickness of said lead frame.

Regarding claim 22, mounting a substrate 1 proximate said lead frame, the substrate having a first surface proximate to the current conductor portion 5 and a second opposing surface disposed distal from the current conductor portion 5, wherein one or more magnetic field transducers 2 are disposed on the first surface of the substrate.

Regarding claim 24, the predetermined shape comprises a rectangular shape having a minimum dimension less than a thickness of said lead frame.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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8. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steiner et al. (US 6,356,068) in view of McDonald et al. (US 4,893,073).

Regarding claim 4, the current conductor portion of Steiner et al. is not said to comprise a conductive clip coupled to the at least two of the plurality of leads. However, McDonald et al. discloses a current conductor in Fig. 2 wherein the current conductor comprises a clip (20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a conductive clip as taught by McDonald et al. in order to concentrate current induced flux through the magnetic sensor (abstract lines 3-7).

Regarding claim 5, the substrate of Steiner et al. when combined with the clip of McDonald would have the first surface of said substrate above said conductive clip and the second surface of said substrate above the first surface (Fig. 4 of Steiner et al.).

Regarding claim 6, the substrate of Steiner et al. when combined with the clip of McDonald would have the first surface of said substrate below said conductive clip and the second surface of said substrate below the first surface (Fig. 5 of Steiner et al.).

Regarding claim 7, a thickness of the conductive clip would be selected in accordance with a current passing through the conductive clip.

9. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steiner et al. (US 6,356,068) in view of Ohtsuka (US 6,683,448).

Regarding claims 14-16, Steiner et al. does not disclose at least one amplifier disposed on said substrate. Ohtsuka '448 teaches a current detector having an amplifier (col. 3, line 50). It would have been obvious to one having ordinary skill in the

art at the time the invention was made to have amplifiers as taught by Ohtsuka, in order to input control current, and the electrodes to the amplifier for putting out a Hall voltage (col. 3, lines 48-50).

Allowable Subject Matter

10. Claims 12, 20 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

Claims 12,20 and 23 are allowable because the prior art alone or in combination does not teach or fairly suggest an integrated circuit comprising a current conductor portion having a T shaped cross section, taken in combination with the other claimed features.

Response to Arguments

12. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

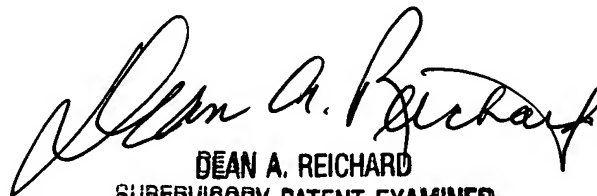
Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carmelo Oliva whose telephone number is (571)272-

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1982. The examiner can normally be reached flexible hours on Monday through Friday with every other Wednesday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard, can be reached at (571)272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.


DEAN A. REICHARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800
11/15/04